Chemistry 311 Midterm Review 2011

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| 1. | Which of the following is a well-tested explanation for a broad set of observations? | | | | | |
|  | a. scientific law | | | c. theory | | |
|  | b. scientific method | | | d. experiment | | |
|  |  | | |  | | |
| 2. | Which is a homogeneous mixture? | | | | | |
|  | a. mixture in which the composition is not uniform throughout | | | | | c. a way to separate a mixture |
|  | b. a mixture in which the composition is uniform throughout | | | | | d. a half-way mixed mixture |
|  |  | | | | |  |
| 3. | What would be used to separate a homogeneous mixture of water and something in the water? | | | | | |
|  | a. crystallization | | c. chromatography | | | |
|  | b. distillation (Any of the 3 would work) | | d. it is impossible | | | |
|  |  | |  | | | |
| 4. | The first step of the scientific method is… | | | | | |
|  | a. experimentation | | c. asking a question | | | |
|  | b. observation | | d. hypothesize | | | |
| . |  | | | | | |
| 6. | What is a hypothesis? | | | | | |
|  | a. A proposed explanation for an observation. | | c. manipulated variable | | | |
|  | b. the scientific method in entirety | | d. all of the above | | | |
|  |  | | | | | |
| 7. | What is matter | | | | | |
|  | a. A negative cation | | c.anything that has mass or takes up space | | | |
|  | b. Branch of science | | d. C6H12O6 | | | |
|  |  | |  | | | |
| 8. | What is the difference between a theory and a law? | | | | | |
|  | a.theories are true, laws are false | | c. theories tell why and laws tell what | | | |
|  | b. theories tell what and laws tell why | | d. theories are a man made chemical while laws are naturally occuring | | | |
|  |  | | | | | |
| 9. | Research that is conducted to explain how something works is called | | | | | |
|  | a. Pure Science | | c. Physics | | | |
|  | b. Applied Science | | d. Biology | | | |
|  |  | | | | | |
| 1. | \_\_\_\_\_\_ is the measure if how close a measurement comes to the actual or true value of whatever is measured. | | | | | |
|  | a. Precision | | c. Accuracy | | | |
|  | b. accepted value | | d. experimental value | | | |
|  |  | |  | | | |
| 2. | How many significant figures are in 0.000000435? | | | | | |
|  | a. three | | c. eight | | | |
|  | b. seven | | d. none | | | |
|  |  | |  | | | |
| 3. | How many millimeters is 2.87 kilometers? | | | | | |
|  | a. 0.0000287 | | c. 287 | | | |
|  | b. 287000 | | d. 2870000 | | | |
|  |  | |  | | | |
| 4. | What is the SI unit for mass? | | | | | |
|  | a. gram | | c. kilogram | | | |
|  | b. ounce | | d. centigram | | | |
|  |  | | | | | |
| 5. | Round 678.1532 so it has four significant figures?? | | | | | |
|  | a. 678.0 | |  | | | |
|  | b. 678.01 | |  | | | |
|  | c. 678.1 | |  | | | |
|  | d. 678.2 | |  | | | |
|  |  | |  | | | |
| 1. | What is the correct number of sig figs in 0.9008 | | | | | |
|  | a.2 | | c.none | | | |
|  | b.3 | | d.4 | | | |
|  |  | |  | | | |
| 2. | How many meters does a car moving at 95 km/h travel in 1.0 s | | | | | |
|  | a.1.6 m | | c.340 m | | | |
|  | b.1600 m | | d.26 m | | | |
|  |  | |  | | | |
| 3. | If a substance contracts when it freezes, its | | | | | |
|  | a. density will remain the same | | c. density will decrease | | | |
|  | b. density will increase | | d. change in density cannot be predicted | | | |
|  |  | |  | | | |
| 4. | Which of the series of units is ordered from smallest to largest? | | | | | |
|  | a.g,cg,mg,kg | | C. s, ns, cs, s | | | |
|  | b. mm, dm, m, km | | D. daL, mL,dL, cL | | | |
| . |  | |  | | | |
| 5. | If 104m = 1cm, how many m3 = 1cm3 | |  | | | |
|  | a.104 | | C 108 | | | |
|  | b.106 | | D 1012 | | | |
|  |  | |  | | | |
| 2. | Which of the following is not a type of radiation? | | | | | |
|  | a. Alpha | | c. Delta | | | |
|  | b. Beta | | d. Gamma | | | |
|  |  | |  | | | |
| 3. | Alpha radiation can pass through: | |  | | | |
|  | a. Metal foil | | c. Wood | | | |
|  | b. Paper | | d. Lead | | | |
|  |  | |  | | | |
| 4. | The neutron to proton ratio determines the: | | | | | |
|  | a. Type of decay | | c. Amount of radiation produced | | | |
|  | b. Rate of decay | | d. Size of the element | | | |
| . |  | |  | | | |
| 5. | Beta radiation is: | |  | | | |
|  | a. an electromagnetic wave | | c. a helium nucleus | | | |
|  | b. an electron | | d. a hydrogen nucleus | | | |
|  |  | |  | | | |
| 1. | Which of the following isotopes of neon has 10 neutrons? | | | | | |
|  | a. Ne-12 | | c. Ne-19 | | | |
|  | b. Ne-10 | | d. Ne-20 | | | |
|  |  | |  | | | |
| 2. | Who came up with the atomic theory? | | | | | |
|  | a. Dalton | | c. Democritus? | | | |
|  | b. Rutherford | | d. Bohr | | | |
|  |  | |  | | | |
|  |  | |  | | | |
|  |  | |  | | | |
| 3. | The atomic number of an atom signifies: | |  | | | |
|  | a. number of neutrons | | c. number of protons | | | |
|  | b. number of electrons | | d. both b and c | | | |
|  |  | |  | | | |
| 4. | What subatomic particle was discovered in the cathode ray? | | | | | |
|  | a. protons | | c. electrons | | | |
|  | b. neutrons | | d. neurons | | | |
| . |  | |  | | | |
| 5. | James Chadwick discovered the existence of what subatomic particles: | | | | | |
|  | a. neutrons | | c. protons | | | |
|  | b. electrons | | d. neurons | | | |
|  |  | |  | | | |
| 1. | Which of the following ideas in Dalton’s atomic theory are no longer true? Choose all that apply | | | | | |
|  | a. All matter is composed of atoms | | c. Atoms of one element are alike but different from those of other elements | | | |
|  | b. Atoms are indivisible | | d. Atoms combine in small, whole number ratios | | | |
|  |  | |  | | | |
| 2. | Earnest Rutherford used the Gold Foil Experiment to discover what? | | | | | |
|  | a. protons | | c. neutrons | | | |
|  | b. electrons | | d. the atomic nucleus | | | |
|  |  | |  | | | |
| 3. | What makes two isotopes of an element different? | | | | | |
|  | a. the number of electrons | | c. the number of neutrons | | | |
|  | b. the number of protons | | d. the number of atoms | | | |
|  |  | |  | | | |
| 4. | What is a half-life? | |  | | | |
|  | a. The time required for one half of the nuclei to become stable | | | | | |
|  | b. The time required for one half of the nuclei to decay | | | | | |
|  | c. The number of years an element lives divided by two | | | | | |
|  | d. All of the above | |  | | | |
| . |  | |  | | | |
| 5. | What is a transmutation? | |  | | | |
|  | a. A change in the electron cloud of an atom to create a new element | | | | | |
|  | b. A combination of the nucleus of two atoms | |  | | | |
|  | c. The separation of the nucleus of two atoms | |  | | | |
|  | d. A change in the nucleus of an atom to create a new element | | | | | |
|  |  | | | | | |
| 1. | In energy level 3, what is the maximum number of electrons? | | | | | |
|  | a.3 | | c. 12 | | | |
|  | b.6 | | d. 18 | | | |
|  |  | | | | | |
| 2. | What is the electron configuration for element Yitrium (Y) ? (None of the above) | | | | | |
|  | a. [Kr]5s3 | | | | c.1s2 2s2 2p6 3s2 | |
|  | b.1s2 2s2 2p6 3s2 3p6 4s2 4p6 5s1 | | | | d. [Kr] 5s2 5p1 | |
|  |  | | | | | |
| 3. | Which visible light has the highest energy? | | | | | |
|  | a. red | | | | c. yellow | |
|  | b. purple | | | | d. green | |
|  |  | | | | | |
| 4. | What is the electron configuration for element Gold (Au) | | | | | |
|  | a. [Xe] 6s2 5d9 | | | | c. [Xe] 6s2 5d5 | |
|  | b. [Xe] 6s2 5f14 5d5 | | | | d. [Xe] 6s2 4f14 5d9 | |
| 5. | Electrons emit light when they: | | | | | |
|  | a. move into high energy levels | | | | c. always emit light | |
|  | b. move into low energy levels | | | | d. never emit light | |
|  |  | | | |  | |
| 1. | What does the d block contain? | | | |  | |
|  | a. metals | | | | c. gas | |
|  | b. non-metals | | | | d. halogens | |
|  |  | | | |  | |
| 2. | What are the representative elements? | | | |  | |
|  | a. s and p blocks | | | | c. s and d blocks | |
|  | b. p and d blocks | | | | d. d and f blocks | |
|  |  | | | |  | |
| 3. | As you move down the period table, atomic size \_\_\_\_\_\_. As you move right, atomic size \_\_\_\_\_\_\_\_. | | | | | |
|  | a. increases, decreases | | | | c. increases, increases | |
|  | b. decreases, increases | | | | d. decreases, decreases | |
|  |  | | | |  | |
| 4. | A cation is \_\_\_\_\_\_\_\_\_.An anion is \_\_\_\_\_\_\_\_\_\_\_\_. | | | | | |
|  | a. positive, positive | | | | c. negative, positive | |
|  | b. positive, negative | | | | d. negative, negative | |
| . |  | | | |  | |
| 5. | Electronegativity \_\_\_\_\_\_\_\_\_\_ down a group. Ionization energy \_\_\_\_\_\_ across a period | | | | | |
|  | a. increases, decreases | | | | c. decreases, increases | |
|  | b. increases, increases | | | | d. decreases, decreases | |
|  |  | | | |  | |
| 1. | Which has a larger atomic radius? | | | |  | |
|  | a. Nitrogen | | | | c. Carbon | |
|  | b. Boron | | | | d. Oxygen | |
|  |  | | | |  | |
| 2. | Which has the greatest ionization energy? | | | |  | |
|  | a. Boron | | | | c. Calcium | |
|  | b. Aluminum | | | | d. Sulfur | |
|  |  | | | |  | |
| 3. | Which has the greatest electronegativity? | | | |  | |
|  | a. Strontium | | | | c. Chlorine | |
|  | b. Sodium | | | | d. Phosphorus | |
|  |  | | | |  | |
| 4. | What element has the electron configuration of 1s2 2s2 2p6 3s1 | | | | | |
|  | a. Potassium | | | | c. Lithium | |
|  | b. Sodium | | | | d. Phosphorous | |
| . |  | | | |  | |
| 5. | Which is not a representative element? | | | |  | |
|  | a. Palladium | | | | C Astatine | |
|  | b. Calcium | | | | D Krypton | |
|  |  | | | |  | |
| 1. | What is a valence electron? | | | |  | |
|  | a. the electron closest to the element | | | |  | |
|  | b. the electrons with the most electro negativity | | | |  | |
|  | c.the electrons in the highest occupied energy level of an element’s atom | | | | | |
|  | d. the electrons in a rubber ducky | | | |  | |
|  |  | | | |  | |
|  |  | | | |  | |
|  |  | | | |  | |
| 2. | What is not a property of metallic ionic bonding? | | | |  | |
|  | a. free-floating electrons | | | | c. malleable | |
|  | b. arranged in compact and orderly patterns | | | | d. negatively charged metal ions | |
|  |  | | | |  | |
| 3. | If an atom loses its valence electron, what is its charge? | | | | | |
|  | a. positive | | | | c. negative | |
|  | b. neutral | | | | d. all the above | |
|  |  | | | |  | |
| 4. | What are properties of ionic compounds? | | | |  | |
|  | a. crystalline solids at room temperature | | | |  | |
|  | b. ionic compounds have high melting pounds | | | |  | |
|  | C can conduct an electric current when melted or dissolved in water | | | | | |
|  | D all of the above | | | |  | |
| . |  | | | |  | |
| 5. | The Octet Rule is when: | | | |  | |
|  | a. Electrons lose electrons in order to fill their valence shells halfway | | | | | |
|  | b. atoms need to reach an electronegativity less than eight | | | | | |
|  | c. eight atoms bond | | | |  | |
|  | d. an atom loses/gains electrons in order to gain noble gas configuration | | | | | |
|  |  | | | | | |
| 1. | What are the electrons called in the highest occupied energy level? | | | | | |
|  | a. outer electrons | | | | c. positive electrons | |
|  | b. valence electrons | | | | d. guacamole electrons | |
|  |  | | | | | |
| 2. | What is the lowest whole number ratio of ions in an ionic compound? | | | | | |
|  | a. empirical formula | | | | c. ionic formula | |
|  | b. formula unit | | | | d. taco formula | |
|  |  | | | | | |
| 3. | Mixtures composed of two or more elements, at least one of which is a metal are called: | | | | | |
|  | a. metalloid | | | | c. enchilada | |
|  | b. alloy | | | | d. noble gases | |
|  |  | | | | | |
| 4. | Which of the following pairs of elements will not form ionic compounds? | | | | | |
|  | a.sulfur and oxygen | | | | c. oxygen and chloride | |
|  | b.sodium and sulfur | | | | d. fajitas and burritos | |
| . |  | | | | | |
| 5. | How many valence electrons does As have? (5 valence electrons) | | | | | |
|  | a.1 | | | | c. 3 | |
|  | b.2 | | | | d. 4 quesadillas | |
|  |  | | | | | |
| 1. | What type of bond has atoms that share electrons? | | | | | |
|  | a. Ionic bond | | | | c. Covalent bond | |
|  | b. Electronegative bond | | | | d. Chemical bond | |
|  |  | | | | | |
| 2. | A tightly bound group of atoms that have a positive or negative charge and behaves as a unit is… | | | | | |
|  | a. triple covalent ion | | | | c. resonance structure | |
|  | b. double covalent ion | | | | d. polyatomic ion | |
|  |  | | | | | |
| 3. | A covalent bond between atoms in which the electrons are shared unequally is | | | | | |
|  | a. non polar bond | | | | c. ionic bond | |
|  | b. polar bond | | | | d. electronegative bond | |
|  |  | | | | | |
| 4. | According to the \_\_\_\_\_\_\_\_theory the repulsion between electron pairs causes molecular shapes to adjust so that the valence-electron pairs stay as far apart as possible. | | | | | |
|  | a. Avogadro | | | | c. Bond polarity | |
|  | b. VSEPR | | | | d. none of the above | |
| . |  | | | | | |
| 5. | The molecular formula does not tell…. | | | | | |
|  | a. the molecular structure (shape) | | | | c the number of atoms in the formula | |
|  | b. the types of atoms | | | | d. none of the above | |
|  |  | | | | | |
| 1. | A covalent bond is… | | | | | |
|  | a. an attraction between polar molecules | | | | c. electrostatic forces that hold ions together | |
|  | b. atoms held together by sharing electrons | | | | d. the lowest whole-number ratio of the ions | |
|  |  | | | | | |
| 3. | Resonance structures occur when… | | | | | |
|  | a. it is possible to draw two or more valid electron dot structures | | | | | |
|  | b. it is impossible to draw two or more valid electron dot structures | | | | | |
|  | c. an oxygen atom is present | | | | | |
|  | d. a carbon atom is present | | | | | |
|  |  | | | | | |
| 4. | Which of these is NOT a VSEPR structure? | | | | | |
|  | a. linear | | | | c. tetrahedral | |
|  | b. trigonal planar | | | | d. spherical | |
| . |  | | | | | |
| 1. | What is the formula for sulfuric acid? | | | | | |
|  | a. HSO4 | | | | c. H2SO3 | |
|  | b. H2SO4 | | | | d. H3SO2 | |
|  |  | | | | | |
| 3. | The possible charges of iron ions are | | | | | |
|  | a.1,4 | | | | c.7,1 | |
|  | b.2,3 | | | | d.1,3 | |
|  |  | | | | | |
| 4. | What is the formula for ammonium? | | | | | |
|  | a.NH3 | | | | c. N2H3 | |
|  | b.NH4+ | | | | d. N4H | |
| . |  | | | | | |
| 5. | Which ion has a negative charge | | | | | |
|  | a.NH4 | | | | c.CO3 | |
|  | b. Fe | | | | d. Ag | |
|  |  | | | | | |
| 1. | What conditions represent STP (standard temperature and pressure)? | | | | | |
|  | a. 100oC, 1atm | c. 0oC, 1atm | | | | |
|  | b. 273K, 1 psi | d. 263K, 1 atm | | | | |
|  |  |  | | | | |
| 2. | How many Liters per mole are all gasses at STP? | | | | | |
|  | a. 69 | c. 22.4 | | | | |
|  | b. >9000 | d. 6.02 X10^23 | | | | |

|  |  |
| --- | --- |
| T | Chemical change is where the composition of the matter always changes |
| F | An extensive property that depends on the type of matter in a sample, not an amount of matter. |
| T | The ability of a substance to undergo a specific chemical change is called a chemical property. |
| F | A substance produced in the reaction is called the reactant. |
| T | A precipitate is a solid the forms and settles out of a liquid measure. |
| T | Physical changes cannot be classified as reversible or irreversible.(not usually referred to in this way) |
| F | During the chemical change, the composition of matter never changes |
| F | Mixtures are always heterogeneous |
| T | Elements cannot be broken down into smaller units (that retain the same properties of that element) |
| F | During a chemical reaction the mass of the product is not the same of the mass of the reactants |
| F | The SI base unit of mass is the milliliter |
| F | A decigram is 100 times smaller than a gram |
| T | The SI unite of volume is derived from the unit of length |
| T | Scientific notation is used to express large numbers in convenient form. |
| T | Significant figures (in measurements) include all the digits that can be known accurately plus a last digit that must be estimated. |
| T | Volume is measured in liters. (SI unit) |
| F | 690 has three sig figs |
| F | Kilo. Hecto. Deca. Base. Deci. Centi. Milli. Nano. Is the proper order of metric units |
| T | The difference between accepted value and experimental value is error (absolute value) |
| T | 7.89 x 10 ^12 is 7,890,000,000,000 in expanded form. |
| F | Thomson’s cathode ray experiment proved the existence of protons in an atom. |
| F | Isotopes of an atom have the same number of neutrons as the original atom. |
| T | Rutherford discovered the nucleus. |
| F | In nuclear atoms, the nucleus takes up most of the volume. |
| F | The total number of protons and electrons in an atom is called the mass number. |
| T | Fission releases less energy than fusion. |
| T/F | Gamma rays are the most harmful form of radiation (depends if you are talking about actual or biological risk) |
| T | Beta particles have more energy than alpha particles |
| F | A group is a horizontal row in the periodic table |
| T | Alpha Radiation has a positive charge |
| F | Half-life is related to how long it takes an element to gain one half of its mass. |
| T | Elements can change to a different element because of radiation.(through emission of particles) |
| T | Fission is used in nuclear power plants. |
| T | Uranium is the primary fuel source for power plants. |
| T | Smoke detectors use radiation to detect smoke. |
| T | Cations are positively charged ions. |
| F | Atomic radii and ionic radii are the same thing. |
| T | Menedeleev’s used atomic mass to order his periodic table of elements. |
| T | Metalloids have similar properties as both metals and non-metals. |
| F | Metals are poor conductors of heat and electricity. |
| F | Halogens are the last group of the periodic table |
| F | The Periodic Table goes in order or increasing atomic mass |
| T | Non-metals are in the p block |
| T | Noble gasses don’t usually bond with other elements |
| T | The f block contains the inter-transition metals |
| T | Alloys have properties which are often superior to those of their component elements |
| F | To find the number of valence electrons in an atom of a representative element, simply look at its group number |
| F | Hydrogen has a charge of 1+ (not the atom) |
| F | The gain of negatively charged electrons by a neutral atom produces a cation. |
| T | An atom’s loss of valence electrons produces a cation. |
| F | Lewis dot structures are diagrams that show valence electrons in lines. |
| F | Ionic compounds generally have low melting points. |
| T | Most ionic compounds are crystalline at room temperature. |
| T | Metal atoms are arranged in very compact and orderly patterns. |
| T | Molecular compounds tend to have relatively low melting and boiling points than ionic compounds. |
| T | In a coordinate covalent bond, the shared electron pair comes from one of the bonding atoms. |
| F | A large bond dissociation energy corresponds to a weak covalent bond. |
| F | The octet rule can be satisfied in molecules whose total number of valence electrons is an odd number |
| T | When polar molecules are placed between oppositely charged plates, they tend to become oriented with respect to the positive and negative plates. |
| F | Molecular compounds tend to have relatively higher boiling/melting points than ionic compounds |
| T | The octet rule still applies to covalent bonds |
| F | A polar covalent bond is a bond between atoms where electrons are shared equally |
| F | The VSPER theory places electron pairs as close together as possible |
| T | A molecular formula shows how many atoms of each element a molecule contains |
| T | A cation is a positive ion. |
| F | The chemical prefix for four is quad |
| F | The element found in all acids is Carbon |
| T | The formula for sulfur hexafluoride is SF6 |
| T | The law of definite proportions states that in all samples of any chemical compound, the masses of the elements are in the same proportions |
| F | Like water, when gas is chilled, it expands. |
| T | Gross is to Pencils, as Mole is to Molecules |
| T | A mole is a quantitative measurement. |
| F | A mole is a qualitative measurement. |
| T | In one mole of nitrous oxide, there is one mole of nitrogen. |

|  |
| --- |
| Describe the difference between an extensive property and an intensive property and give an example for each.  *An intensive property, such as density, is independent of mass. Regardless of the sample size of a substance the density is constant.*  *Volume is extensive, as the sample size changes (different masses) the volume changes.* |
| How can you distinguish an element from a compound?  *By formula, a compound contains 2 or more elements combined which can be separated by chemical means. An element is a collection of the same atom which cannot be separated by any means and still retain the properties of that element.* |
| Explain how a chemical change is different from a physical change  *A chemical change changes the composition of matter whereas a physical change does not alter the composition. Physical changes are used to separate mixtures into their components whereas chemical changes can separate compounds into elements.* |
| What are four indications of a chemical change?   1. *Change in color 2. Change in Temperature 3. Production of a gas 4. Production of a precipitate* |
| Define the relationship between Hydrogen Oxygen and Water.  *Hydrogen and Oxygen are elemental. Water is a covalently bound compound consisting of two hydrogens and one oxygen atom.* |
| What are the two types of techniques discussed in chapter 2 that can be used to separate mixtures and what types of mixtures can be separated using these techniques?   1. *Filtration (separation of an un-dissolved solid from a liquid) 2. Distillation (homogeneous solutions of water and another substance)* |
| Convert from Kelvin to Celsius: 52.8 degrees Celsius  *K= oC+273 K= 325.8 = 326* |
| Convert to grams: 2.5 liters *(not possible)* |
| Calculate the % error if the experimental value is 23.7 and the accepted value is 30.  *x100=21%* |
| An average man requires about 200 mg of riboflavin (vitamin B2) per day. How many tablespoons of cheese would a man have to eat each day if this was the only source of riboflavin and if mozzarella cheese contained 5.5 mg of riboflavin per gram? The density of mozzarella cheese is 68.93 grams per dL (1TBS= 15mL) |
| If 1.0g of silver can be converted into 400.0 square feet of mirrors, how thick is the coating in millimeters. The density of silver is 105 dg/cm3. |
| A cheetah can run 112 km/h over a 100-meter distance. What is the speed in meters per second? |
| Write the isotopic notation for an atom of silicon that contains 16 neutrons:  *Si-30* |
| Element: Ni  Protons: 28  Mass #: 59 (only because no other information was provided. Assume atomic mass, rounded to whole number is the same as the mass number)  Electrons: 28  Atomic #: 28  Neutrons: 31 |
| The “newly discovered” element Pavium has a mass number of 42. How many protons, neutrons, and electrons does an atom of Pavium contain?  *Not enough information to determine.* |
| Plutonium-23 emits alpha particles and is therefore especially hazardous when inhaled or ingested. What new element is formed by this alpha emission? Write a balanced nuclear equation.  *Not a valid isotope. Plutonium has 94 protons and since the mass number (23 in your example) is the sum of the number of protons and neutrons, this is impossible.* |
| A patient is administered 20 mg of iodine-131. How much of this isotope will remain in the body after 40 days if the half-life for iodine-131 is 8 days? |
| Fusion reactions produce enormous amounts of energy. Why is fusion not used to generate electrical power?  Need to achieve extremely high temperatures to run the reaction, containment and cost are big issues as well. |
| Radon-222 goes through Alpha Decay. What is the element produced? Balance the equation. |
| Potassium-40 goes through Beta Decay. What is the element produced? *Ca-40* |
| What is the wavelength of radiation with a frequency of 1.50x 10^13 Hz? Does this radiation have a longer or shorter wavelength than red light?  5.0x104m>7x10-7m |
| The energy (E) of a photon absorbed or emitted by a body is proportional to its frequency (v). E = h x v. The constant h equals 6.63 x 10^-34 J(s). What is the energy of a photon of microwave radiation with a frequency of 3.20 x 10^11 s^-1? |
| Order these elements in order of atomic radius size (least to greatest):  Potassium, Nickel, Cobalt, Manganese, Arsenic *As,Ni,Co,Mn,K* |
| Explain ionization energy.  *The amount of energy required to remove an electron from an atom*. |
| Explain electronegativity  *The ability of an atom to attract electrons* |
| Give the electron configuration for silver.  [Kr]5s24d9 |
| What is the electron configuration of Neon?  [Ne] or 1s2 2s2 2p6 |
| What is the trend of ionic radii.  For both s block metals and p block non-metals the ionic radius decreases as you move from left to right and it increases as you move down a group. The non-metal ions are characteristically larger the metal ions due to an increase in electrons which expand the electron cloud. |
| Write the name and symbol of the ion formed when an oxygen atom gains two electrons.  O2- Oxide ion |
| Find the electron dot structure of argon.  http://www.chem.wisc.edu/~newtrad/CurrRef/BDGTopic/BDGFigs/1_5lewper.gif |
| Draw the Lewis Dot Structure for Oxygen http://www.chem.wisc.edu/~newtrad/CurrRef/BDGTopic/BDGFigs/1_5lewper.gif |
| Write electron configurations for the 2+ Cation, Iron.  [Ar]3d6 |
| Show the Lewis structure of NH3 http://www.uwplatt.edu/~sundin/images/lewnh3.gif |
| Draw the dot structure of H2S Like water. *Bent with sulfur in the middle and two lone pairs on sulfur.* |
| #1 Draw the dot structure of BrO3- <http://www.chemdl.org/labs/avisualdatabase/data/png/bro3_.png> |
| #2 Draw the electron dot structure of CH4. <http://upload.wikimedia.org/wikipedia/commons/c/c0/Methane-2D-square.png> |
| Draw the electron dot structure of hydrogen fluoride. *Hydrogen single bonded to Fluorine, 3lone pairs on fluorine* |
| What is the geometric shape of #1 and #2?  Trigonal pyramidal, tetrahedral |
| What is the name for Fe2O3? Iron III oxide |
| What is the formula for sulfuric acid? H2SO4 |
| What is the formula for ammonium sulfate? (NH4)2SO3 |
| Find the number of particles of nitrogen when a mole of ammonium is mixed with another mole of ammonium.  Ammonium is an ion, maybe you meant ammonia (NH3). |
| Find the percent composition of hydrogen in hydrogen peroxide. (H2O2)  x100=5.9% |
| Find the empirical formula for a compound consisting of 0.40 mol Cu, and 0.80 mol Br.  = CuBr2 |